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Mazdoor Kisan Shakti Sangathan

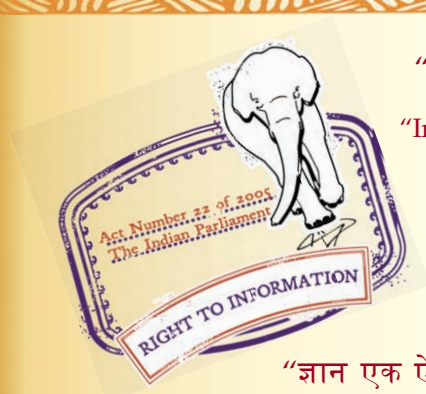
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

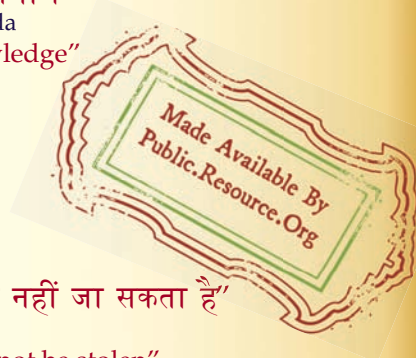
IS 9175-9 (1985): Rationalized Steels for Automobile and Ancillary Industry, Mechanical and Physical Properties - Part 9 11C10S25 Grade steel [MTD 16: Alloy Steels and Forgings]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 9175 (Part 9) - 1985
(Reaffirmed 2004)

Indian Standard

SPECIFICATION FOR RATIONALIZED STEELS FOR AUTOMOBILE AND ANCILLARY INDUSTRY, MECHANICAL AND PHYSICAL PROPERTIES

PART 9 11C10S25 GRADE STEEL

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Indian Standard

SPECIFICATION FOR RATIONALIZED STEELS FOR AUTOMOBILE AND ANCILLARY INDUSTRY, MECHANICAL AND PHYSICAL PROPERTIES

PART 9 11C10S25 GRADE STEEL

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Indian Standard

SPECIFICATION FOR RATIONALIZED STEELS FOR AUTOMOBILE AND ANCILLARY INDUSTRY, MECHANICAL AND PHYSICAL PROPERTIES

PART 9 11C10S25 GRADE STEEL

0. FOREWORD

0.1 This Indian Standard (Part 9) was adopted by the Indian Standards Institution on 26 December 1985, after the draft finalized by the Co-ordinating Committee on Materials for Automobiles had been approved by the Structural and Metals Division Council.

0.2 The Part 1 of this standard was published in 1979 which covered the chemical composition of 33 rationalized steels. The mechanical properties, hardenability and isothermal transformation characteristics of these 33 rationalized steels are now being covered in different parts of this standard (Parts 2 to 34). The data concerning these properties given in this standard is only for guidance and information purposes.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part 9) covers the chemical composition and mechanical properties of 11C10S25 grade of steel for use by automobile and ancillary industry.

*Rules for rounding off numerical values (revised).

2. CHEMICAL COMPOSITION

2.1 The chemical composition of this grade of steel shall be as given below:

<i>Constituents, Percent</i>				
C	Si	Mn	S	P
0.08-0.15	0.10 <i>Max</i>	0.80-1.20	0.20-0.30	0.060 <i>Max</i>

3. HARDNESS

3.1 The maximum hardness for this grade of steel delivered in the annealed or normalized condition, when determined in accordance with IS : 1500-1983*, shall be 154 HB.

4. MECHANICAL PROPERTIES

4.1 The mechanical properties of this grade of steel (when supplied) in the hot-rolled or normalized and cold-drawn condition, when determined in accordance with IS : 1608-1972†, shall be as given below and in Table 1, respectively.

Hot Rolled or Normalized Condition

Tensile strength, MPa	365 <i>Min</i>
Elongation, percent, <i>Min</i> , gauge length $5.65 \sqrt{A}$	22

TABLE 1 SPECIFIED TENSILE LIMITS FOR COLD-DRAWN BARS

	TENSILE STRENGTH MPa	ELONGATION PERCENT, GAUGE LENGTH $5.65\sqrt{A}$ <i>Min</i>
Up to 20 mm	490-620	8
Over 20 mm and up to 40 mm	430-560	11
Over 40 mm and up to 63 mm	390-520	13
Over 63 mm	360-490	13

5. HOT WORKING AND HEAT TREATMENT TEMPERATURES

5.1 The recommended hot working and heat treatment temperatures are given below:

Forging/rolling temperature	1 250°C
Annealing temperature	880-930°C

*Method for Brinell hardness test for metallic materials (*second revision*).

†Method for tensile testing of steel products (*first revision*).

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Subcritical annealing	650-700°C
Normalizing temperature	880-930°C
Carburizing temperature	880-930°C
Refining after carburizing	870-900°C
Hardening after carburizing	760-790°C
Tempering temperature	620°C <i>Max</i>

6. MACHINABILITY RATING

6.1 This steel can be machined at rates twice those used for normal mild steel.

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Panel to Collect Data on Steel for Automobile Purposes, SMDC 31 : P12

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